

Public-Private Partnerships for Depot-Level Maintenance

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SUMMARY

Public-private partnerships for depot maintenance are an increasingly important source of capabilities and workloads for organic depots. Partnerships can take a variety of forms to lease organic equipment or facilities to a commercial firm, share work, team, or produce articles or services for the private sector. Partnerships can directly complement organic core capabilities, and recent legislation specifically contemplates partnerships for work related to core competencies.

Successful partnerships employ three essential elements: a suitable trigger to initiate the partnership, an effective broker to establish the partnering agreement, and agreements long enough to justify private-sector investment in leased facilities at organic depots. Partnership arrangements can also use a variety of agreement mechanisms that range from a simple handshake to formal contracts.

Fundamentally, partnerships are business relationships, and must have sufficient economic appeal to justify participation by all parties. There is ample evidence that participants are finding that justification, and partnering agreements are “win-win-win” situations for the organic depots, commercial firms, and the warfighters and their agents.

Case studies are useful illustrations of some of the particular features now incorporated into partnering agreements. The scope of future partnerships will inevitably expand, even as their characteristics rapidly evolve. Ultimately, partnerships may reach a degree of public-private integration that dramatically improves flexibility and responsiveness for repair operations.

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INTRODUCTION AND OVERVIEW

Public-private partnerships are a promising new development in the depot maintenance arena. Although the first depot maintenance partnerships were initiated in the early 1990s, the concept is just now gaining the requisite corporate support and legal authority to become a major management tool.

This paper has two main parts. The body of the report is an assessment of key features and benefits of partnerships, an overview of potential metrics to measure their progress, and a short discussion of the future potential of partnerships. The attached appendices provide a set of case studies designed to illustrate particular features of partnerships that are already in force and might serve as models for future efforts.

Treatment of some of the topics in this paper is necessarily fragmentary, reflecting the ongoing work within the Office of the Secretary of Defense (OSD) that has already resulted in a policy statement on partnerships and is now developing metrics for partnerships.

PARTNERSHIPS DEFINED

part-ner-ship (pärt' ner-shĭp') *n.* 1. The relationship between two or more people or organizations that are involved in or share the same activity. 2. Cooperation between people or groups working together. 3. An organization formed by two or more people or groups to work together for some purpose. 4. A company set up by two or more people or groups who put money into the business and share the financial risks and profits. 5. The people who make up a partnership, collectively.¹

In terms of depot maintenance, a public-private partnership is an agreement between an organic depot maintenance activity and one or more private or government entities to perform work or use facilities and equipment. Specific partnering agreements may take many forms, from less formal arrangements documented by a memorandum of understanding (MOU) to formal contracts. Partnership arrangements may invoke aspects of legislation or regulatory guidance necessary or prudent to the specific undertaking (e.g., if there is a sale or lease involved). Statutory authority also allows, in specified circumstances, government reimbursement for the costs of goods and services sold to the private sector and for lease fees.

¹ *Microsoft Encarta College Dictionary*, St. Martin's Press, New York, 2001.

There are four basic types of depot maintenance partnerships today:

- ◆ Lease of organic equipment or facilities
- ◆ Work-share agreements that use a combination of organic and commercial facilities and employees
- ◆ Team arrangements in which an organic depot and a commercial firm jointly contract with a DoD third party to perform work emanating from base realignment and closure
- ◆ Hire of organic depot capabilities to provide articles or services to the private sector.

HISTORY

Public-private partnerships are in widespread use throughout the federal government. Table 1 illustrates the range of such arrangements.

Table 1. Public-Private Partnerships in Use

Agency-specific	Examples of services
Transportation <ul style="list-style-type: none">• Smartraveler Environmental <ul style="list-style-type: none">• Water utilities• Environmental services Health & human services <ul style="list-style-type: none">• Healthcare reform	Public services Infrastructure Community development Child and adult care Facility conversions Corrections Workforce training Military housing Maintenance

Partnerships are a relatively new feature within depot maintenance. Although facility partnerships date back to World War II, the first partnerships involving depot maintenance facilities or workloads were apparently issued at Anniston Army Depot in the early 1990s. A series of amendments to legislation has served to encourage partnership applications within the depots. The Joint Group on Depot Maintenance publishes a periodic listing of current partnerships for OSD. Their latest report cited some 66 partnerships, with a total estimated value in excess of \$5 billion.²

² *Public-Private Partnerships for Depot-Level Maintenance*, prepared for the Deputy Under Secretary of Defense (Logistics and Materiel Readiness) by the Joint Group on Depot Maintenance, July 2001.

RELATIONSHIPS TO CORE CAPABILITIES

There is considerable legal guidance about depot maintenance and what capabilities and workloads should be established in organic depots. The bulk of this guidance is in Title 10 of the United States Code.

Section 2460 (10 U.S.C. 2460) defines depot maintenance. Section 2464 defines core depot maintenance capability. Because the terms and concepts in these sections are a study unto themselves,³ they are not repeated here. It is sufficient to note that legislation requires the organic depots establish and sustain organic capability “necessary to ensure effective and timely response to a mobilization, national defense contingency situations, and other emergency requirements.”⁴

DoD has responded to this legal requirement by including the statutory citations in acquisition procedural guidance.⁵ In turn, acquisition contracts with the defense industry frequently read, “comply with core requirements.”

The full consequence of the statutory, regulatory, and contractual requirements is still taking shape. The issue has been further clarified by the publication of a revised core methodology that is just now being implemented.⁶ The anticipated result of the new methodology is a substantial reemphasis on organic depot maintenance capabilities for emerging weapon systems.

Congress has also issued new authority that explicitly encourages more partnerships for work related to core competencies. The provisions in 10 U.S.C. 2474 have yet to be invoked for partnerships with depot activities designated as Centers of Industrial and Technical Excellence (CITEs), but the military services have indicated that such agreements are in the works. In part, the section authorizes the service secretaries to encourage the formation of partnerships for work related to the core competencies of a CITE.

This paper describes how partnerships can assist both a manufacturing and a repair operation with a single set of tooling and equipment. While the first examples of this arrangement are just taking shape, it is already apparent that establishing such capability on an organic depot is commercially viable, competitively attractive in terms of alternatives, and a superior support posture for available alternatives.

³ *DoD Core Depot Maintenance Policy/Methodology Report*, produced by Pricewaterhouse Coopers and the Logistics Management Institute for the Deputy Under Secretary of Defense (Logistics and Materiel Readiness), May 15, 2001.

⁴ 10 U.S.C. 2464(a)(1).

⁵ DoD Instruction 5000.2, *Operation of the Defense Acquisition System*, January 4, 2001, Enclosure 3, Table 1.

⁶ “Implementation of Depot Maintenance Core Policy and Methodology,” memorandum signed by the Honorable Diane K. Morales, Deputy Under Secretary of Defense (Logistics and Materiel Readiness), October 4, 2001.

ESSENTIAL ELEMENTS OF PARTNERSHIPS

There are three essential elements for successful public-private partnerships in depot maintenance. Whatever the actual workload or type of partnership, there is always

- ◆ a triggering event that makes a partnership feasible,
- ◆ a broker that facilitates the arrangement, and
- ◆ an agreement length sufficiently long to allow for commercial investment in the venture.

Regardless of the other features embodied in any given partnership, these elements are always identifiable.

Triggers

trig-ger (trĭg' er) *n.* A stimulus that sets off an action, process, or series of events. ■ *v.* To set something off, bring something about, or make something happen.⁷

Within the context of depot maintenance partnerships, a trigger is a circumstance that leads to a review and possible realignment of planned support posture (for either new or established support capabilities and workload requirements). As we will discuss shortly, a triggering event must occur before it is possible to consider partnerships as a support alternative.

Depot maintenance partnerships represent a significant shift in classic support concepts. Before partnerships became a significant option, the available choices in selecting sources of repair tended to be bi-polar, with either an entirely contract or a fully organic solution. The major exceptions to these choices occurred predominantly when an organic capability was saturated or needed to transition to other types of workload.

“Source of repair” decisions are typically resistant to change for a period, and for very practical reasons: the decision might entail significant capital investments; the workforce, once established, tends to exercise a certain political equilibrium; and contractual terms are expressed usually in years. These factors work to counter the consideration of alternative support solutions. As systems age, the number of potential alternative repair sources frequently declines, which reflects the commercial consequences of product obsolescence and further supports the status quo.

Influences that work to protect the status quo exist in both the public and private sectors. Corporations with established repair capabilities and trained workforces

⁷ *Microsoft Encarta College Dictionary*, St. Martin's Press, New York, 2001.

are far less interested in shifting part of that capability toward a new partnership. The problem compounds when a company applies a repair workload to sustain an underutilized “warm” production line. Companies that provide interim contract support during their production run benefit from the contribution that the repair workload makes to their overhead cost base—and to the bottom line.

Opportunities to consider partnerships, then, do not occur naturally in established, ongoing support arrangements. Instead, they occur when something changes with respect to the support. Those opportunities predominantly include initial support decisions, midlife support changes, and end-of-life support changes.

INITIAL SUPPORT DECISIONS

Perhaps the easiest time to be innovative in support planning is when the entire support concept is in a “green field” status, without embedded constituencies or sunk costs. At this point, it may be possible to locate the actual production capability on a depot site and avoid much of the public-versus-private debate altogether.

For example, a division of General Dynamics Land Systems partnered with Anniston Army Depot to accomplish final assembly for the Army’s Light Armored Vehicle III (Stryker) on Anniston. In this case, the Anniston partnership was an integral part of the winning contract proposal to manufacture the Stryker, and the partnering agreement was in place before the prime contract was even awarded. Anniston’s role was economically attractive in this “green field” environment, and proved to be the winning approach against a set of internal General Dynamics alternatives before the contract proposal was submitted to the government.

In such cases, the opportunities to be innovative are strongest before any support decisions have been made, including a decision to apply interim contract support. Once support capability has been established in either a commercial or an organic facility, planned transitions (e.g., from interim contract support to lifetime contract logistics support) are much less likely to result in opportunities to consider alternatives such as partnerships.

Partnerships have an interesting but unproven potential to avoid the inertia of earlier support decisions, by simply planning for a transition at the point where production converts to support. It might be possible, for example, for an organic depot workforce to gradually replace (or even be formed from) a commercial manufacturing workforce as a production run winds down and the line is converted to support depot maintenance operations. This is the plan for the M1A2 Primary Gunner’s Sight production line at Anniston Army Depot.

MIDLIFE SUPPORT CHANGES

There are a variety of occasions that force a review of established support arrangements. Examples include base realignment and closure (BRAC) decisions;

shifts in operating concepts or force structure (e.g., strategic arms limitations, conventional forces in Europe); and changes in an established support arrangement itself (e.g., process reengineering and modernization). The key to each of these situations is the fact that the existing support arrangement must change and is, therefore, subject to intervention.

An example of a BRAC-related partnership is the AGT1500 recuperator production facility at Anniston Army Depot, which was relocated from the Army's Stratford, CT, engine plant as a result of the 1995 decisions of the Base Closure and Realignment Commission (BRAC '95).

Another example is the E-8 Joint Surveillance Target Attack Radar System (JSTARS) Total Systems Support Responsibility (TSSR) partnership between Warner Robins Air Logistics Center and Northrop-Grumman Corporation. The arrangement was triggered by the transition from interim contract support to a lifetime product support arrangement.

A third example is the auxiliary power unit partnership between Naval Aviation Depot (NADEP) Cherry Point and Honeywell. The Naval Inventory Control Point Philadelphia brokered the partnership to bring the original equipment manufacturer into the product support equation, with substantial reductions in the awaiting parts status for depot production. In this case, it was the potential to inject process reengineering and achieve overall materiel support improvements, and not depot maintenance itself, that drove the partnership decision.

END-OF-LIFE SUPPORT CHANGES

Occasionally, contractors and even organic depots find they have reason to terminate support for an ongoing workload. This is a normal result of the march of technological innovation and the inevitable decline in force structure as weapon systems approach the end of their operating lives. In many of these cases, the organic depots must make a "last-source" support decision that may extend for decades of continued operation of the system.

Although there are no current examples of "last-source" partnerships, the topic appears to be under active consideration.

Brokers

broker (brōk'er) *n.* A person who acts as an agent for others in negotiating contracts or buying and selling goods and services.⁸

Triggering situations by themselves are not sufficient to lead to partnership arrangements. There must also be a broker who is familiar with the situations, can identify opportunities as they arise, and can initiate a discussion of possibilities between the prospective partners.

⁸ *Microsoft Encarta College Dictionary*, St. Martin's Press, New York, 2001.

Depot maintenance partnerships do not happen automatically; too many pressures reinforce the status quo. Invariably, an agent acts as a broker to establish the structure of a partnership, and to act as an ombudsman for the duration of the partnership agreement.

To be an effective broker for a depot maintenance partnership, an agent must be situated to recognize triggering events when they occur, to employ the triggers as stimuli for partnering discussions, and to arrange for suitable resource administration to effect partnering agreements. Whether or not the broker directly controls the requisite resources, the broker is the agent to whom the partners look for leadership throughout the agreement.

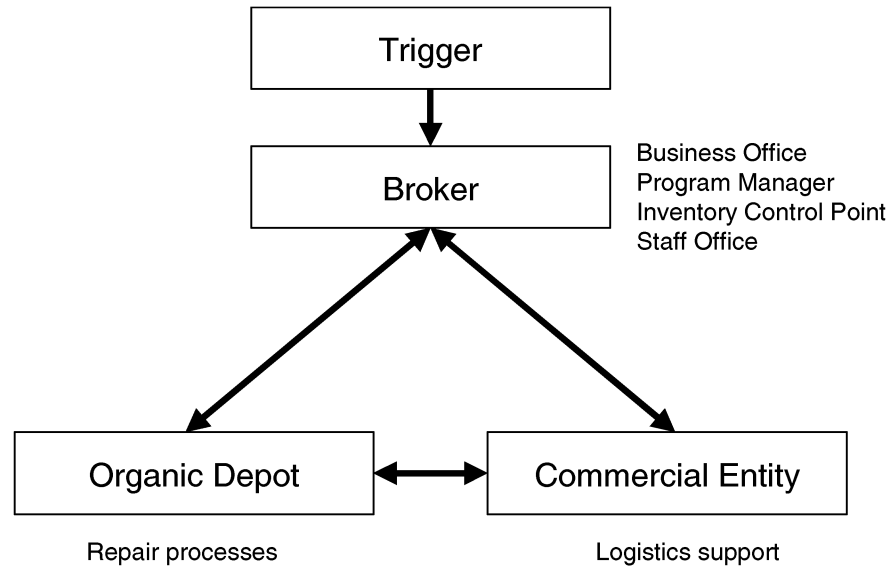
For depot maintenance, brokers can be a business office (if one exists at a particular depot), a program manager, an inventory control point, or a related staff office, such as a directorate of plans. There may be brokers at several different organizational levels, although they exist most often at the maintenance installation rather than off-site—the notable exceptions are the Navy’s inventory control points.

The broker may be the source of funding for either or both parties in the partnership, and may be the source of workload. (Sources of funding and workload are treated separately below.) When the broker is the funding agent or program manager, the partners view the broker as their customer. Regardless, the fundamental role of the broker is to identify an opportunity for a partnership and bring the organic depot and the commercial entity together.

The broker’s initial influence in forming a partnership makes him or her a logical ombudsman, or referee, for issues that arise during the life of a partnership. Of course, dispute resolution procedures may exist in partnership agreements that employ some other organizational entity.

Figure 1 illustrates the role of the broker in relation to the two primary members of the partnership.

Figure 1. Broker Relationship to Organic Depot and Commercial Entity



Brokers are also useful mediators of issues that may be related only peripherally to a partnership. For example, the organic depot's workforce may harbor concerns about the ultimate intent of a partnership in terms of potential job erosion. In more than one instance, brokers have been instrumental in mitigating such concerns by highlighting the benefits a partner can bring to a depot facility. In effect, the broker acts as an advocate for the partnership arrangement rather than the individual affiliate.

In addition, brokers can help the partners expand the scope of their relationship as both sides gain trust and confidence in the arrangement. In practice, this has involved adding workload to an existing partnership, adding features to a partnership (examples include base operating support functions or physical distribution services), or proposing new partnership arrangements.

Of course, the partners themselves may seek to expand their relationship to include other business ventures. A notable example involves subcontracts with a commercial partner in support of the primary partnership (e.g., the CAT Logistics distribution activity that supports the Honeywell partnership with NADEP Cherry Point for depot maintenance of auxiliary power units). Eventually, aggregations of related commercial ventures might look more like an industrial park, such as the former depot at Kelly Field in San Antonio, Texas.

Length of Agreement

Partnerships tend to have substantially longer operating periods than classical depot maintenance contracts. Classic contracts have terms that are most frequently 1 or 3 years in length. These shorter periods reflect a job-order approach to many repair requirements (contracting for single items or production

lots), and a reluctance to extend contract performance periods to the point where price renegotiation may be required. Bundled or “corporate” contract requirements (e.g., basic ordering agreements) tend to have somewhat longer performance periods.⁹

Table 2 lists partnerships from the July 2001 partnership report with estimated annual values greater than \$1 million and performance periods 5 years or longer.

Table 2. Partnership Performance Periods

Partnership	Period of performance	
	Start	End
Amphibious Assault Vehicle Rebuild	FY98	FY03
Improved Ribbon Bridge Manufacturing	FY01	FY06
F/A-18E/F Components	FY01	FY06
KC-135, A-10 Programmed Depot Maintenance, Commodities	FY99	FY07
Auxiliary Power Units	FY01	FY10
Propulsion Business Area (PBU)	FY99	FY14
E-8 Joint Surveillance Target Attack Radar System (JSTARS) Total Systems Support Responsibility (TSSR)	FY00	FY22
B-2 Defensive Management System Tools Program (DMSTPS)	FY00	Ongoing
B-2 Composite Manufacture and Repairs	FY99	Ongoing
Fox Vehicle Upgrade – Services	FY97	Ongoing
Abrams Integrated Management (AIM XXI)	FY96	Ongoing
T700 Engine Overhaul and Repair	FY00	Ongoing

In part, the longer-term agreements for partnerships reflect the need for commercial entities to have enough time to be able to justify capital investment in a leased facility. Recent General Accounting Office (GAO) studies of facility leases indicate that industry typically desires a nominal 15 percent internal rate of return, which would place the break-even point for a lease agreement somewhere between 5 and 7 years.¹⁰

Another reason for longer-term partnering agreements relates to the underlying agreements that partnerships serve. There is a growing tendency toward lifecycle product support arrangements, particularly with the original equipment manufac-

⁹ Logistics Management Institute, *Single-Source Contracting for Depot Maintenance*, Report number LG005T3, Calendar II, Joseph, et al., July 2001, p. 1-7.

¹⁰ Public-Private Partnerships: Factors to Consider When Deliberating Governmental Use as a Real Property Management Tool, statement of Bernard L. Ungar, Director, Physical Infrastructure Issues before the Subcommittee on Technology and Procurement Policy, Committee on Government Reform, House of Representatives, GAO-02-46T, October 1, 2001.

turers (OEMs). In these instances, the depot maintenance partnership may simply reflect the long-term nature of the prime contract award, and may extend for 20 years or more.

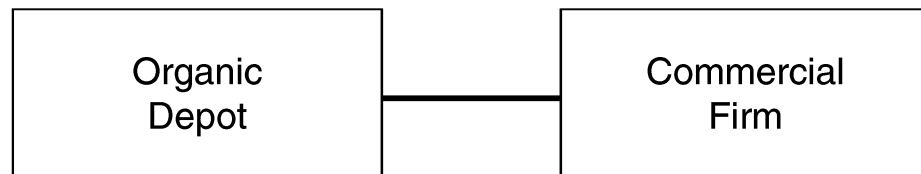
Partnership agreements may exceed the allowable length of contracts in federal procurement rules. In such instances, the partnering agreement may actually be sustained by more than one implementing contract over the life of the agreement.

PARTNERSHIP RELATIONSHIPS

Some of the earlier depot maintenance partnerships started with a handshake. As the scope of the agreements has grown in complexity and value, the range of organizational relationships has expanded; and the administrative vehicles used to formalize the partnerships have grown. What follows is a synopsis of the different major organizational relationships, and the types of agreements in use today.

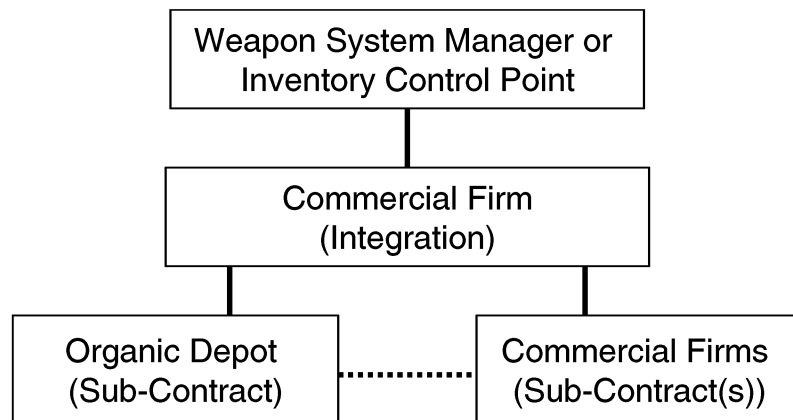
The simplest arrangements are directly between the organic depot and a commercial firm (as shown in Figure 2); for example, facility leases.

Figure 2. Two-Party Agreements



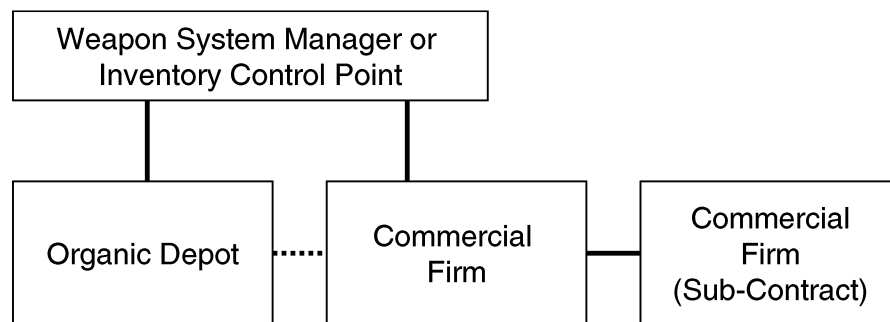
The next step in the range of agreements involves a third party, typically the funding customer. There are two basic variants of this arrangement; the first has the commercial firm working for the customer and subcontracting with the depot, so that the commercial firm is the paying agent for the depot (see Figure 3).

Figure 3. Commercial Firm Is the Depot's Customer



In the second variant of this arrangement, the depot retains the government contracting activity as its customer, as does the commercial firm (see Figure 4).

Figure 4. Depot's Customer Is the Government Contracting Activity



The relative merits of these two kinds of partnership generally center on issues related to sources of funding and sources of workload.

Sources of Funding

There is legal authority for organic depots to accept payment for leases and sales of goods and services to private industry in a variety of defined circumstances. This authority gives the depots a certain degree of flexibility in terms of how they structure their partnering arrangements.

The most direct approach involves straight lease payments from a commercial firm to the organic depot; this approach is consistent with Figure 2 above.

Another approach is for the depot to perform work for and be paid by the commercial firm. In turn, the commercial firm is typically under contract to a military

component (service or defense agency) and is paid under the terms of the contract. This approach is consistent with Figure 3 above. At least one military service has expressed doubts about this type of arrangement because it results in a government activity doing work for a commercial entity, which is itself doing work for a government activity.

Because commercial firms normally add a general and administrative (G&A) charge to their overhead structures for the management of subcontracts, the depot's price of production is adjusted upward by an additional percentage in the billing process. Critics of this form of arrangement say this additional G&A charge is unnecessary.

The alternative arrangement, as illustrated in Figure 4, is to have the depot work for the same contracting entity as the commercial firm—so the government is paying the government. While this arrangement effectively avoids the G&A charge, it may not be the most advantageous. Total performance costs may actually increase if the commercial partner must administer the depot's contribution separately, delivered to the partner as government-furnished material. Partnerships should consider the total cost of the arrangement to determine the best approach for each case.

The opposite perspective is strictly commercial: Partnerships may not be the best possible business arrangement because they remove a portion of the company's G&A allocation base. In this light, even an excellent partnership would only earn an "okay" grade.

Sources of Workload

Depending on the specific partnership and the legal authority it invokes, workloads (in instances where government personnel are involved in production of goods and services) may be either government or commercial, manufacturing or repair. They may also be a combination of government and commercial, from a variety of customers. For example, the Low Altitude Navigation and Targeting Infrared for Night (LANTIRN) partnership at Warner Robins Air Logistics Center incorporates Air Force and Navy workloads, as well as foreign military sales. Similarly, the recuperator production workload at Anniston Army Depot is a combination of Army, foreign military sales, and direct sales. To date, all partnerships are focused on DoD and defense-related workloads.

The recent OSD policy memorandum on partnerships restricts allowable workloads (where government personnel are involved in the production of goods and services) to only DoD and defense-related work, unless specifically authorized by legislation. Because 10 U.S.C. 2474 appears to authorize commercial workloads, there may be additional sources of work for future partnerships.

Types of Agreements

Most partnerships for sales of goods and services involve multiple agreement types with interconnecting provisions. Table 3 is a summary of the basic types.

Table 3. Partnership Agreement Types

Agreement type Applies to	PM/ICP	Contractor	Organic depot
Contract	X	X	
Subcontract		X	X
MOA or MOU	X	X	X
Lease agreement		X	X
Specific work agreements		X	X

Notes: PM = weapon system manager; ICP = inventory control point; MOA = memorandum of agreement; MOU = memorandum of understanding.

CONTRACT

Contracts generally define relationships between a government contracting activity and a commercial firm, or between a contractor and subcontractor. While a contract relationship might exist between a contracting activity and an organic depot, a contract does not appear to be the primary method for defining partnership relationships where a depot works directly for a contracting activity. When a depot works for commercial industry, the relationship may be defined by a subcontract.

SUBCONTRACT

Subcontracts would not be a suitable vehicle to define an organic depot's relationship with a government contracting activity. However, it is possible that an organic depot will subcontract (or act like a subcontractor) to a commercial firm for direct sales of goods and services. These so-called direct sales agreements are a major source of new partnership business.

MEMORANDUM OF AGREEMENT OR UNDERSTANDING

An MOA or MOU frequently serves as the basic partnering agreement between an organic depot and commercial entities. In principle, the document can be a basic agreement, with the expectation that more detailed implementation agreements will be negotiated for specific workloads and relationships.

COMMERCIAL SERVICES AGREEMENTS

Commercial service agreements can implement the equivalent of specific subcontract relationships between organic depots and commercial firms, as authorized by legislation. In some instances, these agreements have served to allow a public depot to fulfill the role of a subcontractor in a winning contract proposal for a prime contract award.

SPECIFIC WORK AGREEMENTS

These documents are the detailed implementation instructions for specific workloads. They include technical data and specify industrial processes to be employed.

SUPPORTING ARRANGEMENTS

A partnership may actually be a composite of several partnering agreements, each using somewhat different legal authority. For example, a supporting arrangement might involve a commercial manufacturer using leased facilities and the host depot's operations support. Each of these elements might involve a separate partnering agreement in some form.

OPERATING RELATIONSHIPS

The series of agreement types profiled above, and their variants, serve to define the partnering relationship between a government depot and a commercial entity. If the commercial firm is the paying agent for the depot contribution to the partnership, then a single agreement or composite of agreements may be all that is necessary to make the partnership work.

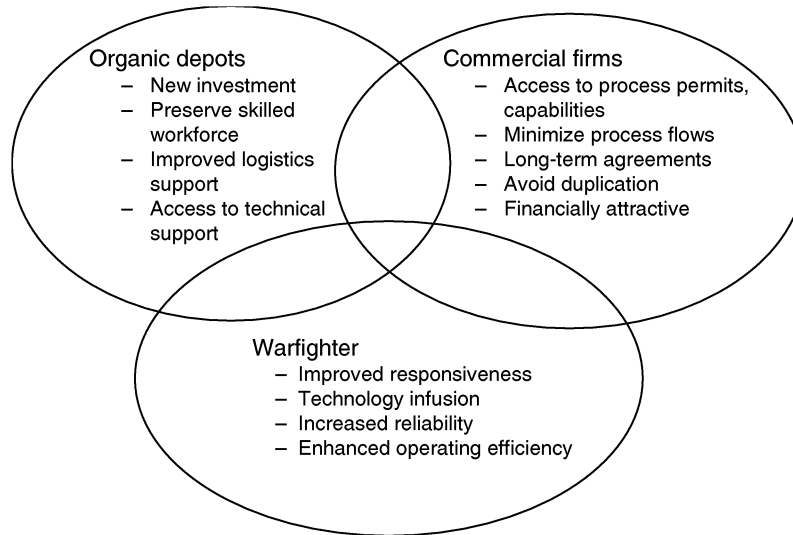
However, additional defense organizations or commercial entities may be involved in a partnership, and each additional party would entail additional agreement(s) to define their part of the relationship. For example, if both of the primary partners performed their work for a third entity operating as a broker and paying agent, then each of the partners would have an additional and separate agreement with the broker. The commercial entity may also have additional subcontract relationships with its manufacturing partners or with specialized firms who perform distribution or other specialized services. The potential range of operating relationships is as varied as the imagination of the potential partners.

BENEFITS

Three different parties stand to benefit from a partnership. The parties may be represented as the depot itself, the commercial partner, and the ultimate end user or "warfighter." These three parties encompass all other intervening organizations, such as the inventory control points and program managers, which are actually agents for the end user. Figure 5 illustrates the potential benefits each of

agents for the end user. Figure 5 illustrates the potential benefits each of the three parties may realize.

Figure 5. Win-Win-Win Situation from Partnerships



These benefits are measurable and realistic. The commercial firm's prime contract typically invokes performance metrics that measure how various performance standards are met. The inventory control point or program manager monitors overall repair performance and its effect on logistics support. The warfighter measures changes in fleet readiness and sustainability, and frequently provides feedback to the partnership about its performance. The commercial firm finds economic advantages from working with the organic infrastructure and its repair expertise, including the potential for additional workload. The following sections expand on these concepts.

Effects on Organic Depots

From the perspective of the organic depots, partnerships can have decidedly positive effects. Their commercial counterparts might bring in capital investment that would otherwise be unavailable. When they involve facility and base operating support (BOS) leases, they spread overhead across a broader base and lower the incremental cost of production for all of a depot's workloads. When partnerships involve the production of goods or services, the added workload serves to preserve the depot's skilled labor base. Production workloads (i.e., goods and services) further broaden the cost base for overhead allocations. Direct access to commercial expertise and management methods promises to improve overall logistics support. When the commercial partner is also the OEM, a depot can obtain improved access to technical support for depot maintenance production and process issues. When the commercial partner adds other features to the partnership, such as express distribution services, local employment levels frequently increase as well.

When a partnership involves the manufacture of defense-related goods or services, the resulting capability brings additional benefits. A single capability can support both manufacturing and depot maintenance on one organic depot site. During manufacturing production, the capability can be devoted to the commercial partner and operated with a commercial workforce. Other organic capabilities (e.g., on-site distribution and material handling, coating applications, BOS services) can complement the manufacturing operation. The production line can serve as a training ground for an organic workforce. Eventually, as depot maintenance workloads begin to generate, the line can be incrementally converted to an organic operation to provide core capabilities. Partnerships can convert portions of the workforce from commercial to government employment as a part of the transition.

Partnerships are transitional tools for the depots. They can help to avoid the either-or choices that accompany a public-versus-private support decision. When a single capability can be located on a depot site, the capability can support both production and support operations. Partners can manage the changeover from production to support operations in a way that minimizes the impact on the workforces. In the future, a growing population of partnerships will introduce new opportunities for the depots that would not exist without this authority. Additional considerations about this future environment are addressed under the section entitled “The Future” below.

Effects on Commercial Firms

Commercial firms can benefit from partnerships because they gain access to a well-developed set of industrial processes optimized for the repair environment. Many of these capabilities include “wet” process licenses for hazardous materials or hazardous waste minimization that may be difficult or impossible to obtain in other venues. Also, the firm’s overall logistics support performance improves, especially when the depot is also the primary customer for the commercial firm’s product. An example is the recuperator production facility; the major customer of which is the Army M1 tank engine overhaul line at Anniston Army Depot.

Long-term agreements provide attractive economic conditions that both justify capital investment and create competitive contracting situations. Collocation of capabilities reduces costs and enhances the assurance of long-term business arrangements (There is no other organic alternative).

Effects on End Users

When a partnership is a part of a performance-based logistics arrangement, the end user typically enjoys improved responsiveness because the commercial entity can use commercial resources to respond to customer demands. The partnership’s streamlined logistics support processes result in faster response times; the commercial supply chain often entails fewer material delays; and the repaired product is frequently more reliable because the repair process uses the latest commercial

configurations to inject advanced technology into the product. The net result is enhanced operating efficiency, with fewer spares, reduced repair workloads, and readily available technical support.

The same benefits apply to program managers. Partnerships can be formed early enough in a program life cycle to avoid investment in duplicative capabilities for contract and organic sources of repair. Partnerships permit single-point accountability for product support rather than a split or diffused responsibility through multiple functional organizations. Partnerships enable compliance with statutory constraints—particularly requirements for core logistics capability—and now may have favorable treatment for the so-called “50-50” depot maintenance workload distribution in a recent revision to 10 U.S.C. 2474.

Most importantly, partnerships improve day-to-day support responsiveness by applying the best of organic and commercial capabilities to the support requirement. Responsiveness is also ensured because of the way organic capabilities are sized—partnerships provide built-in surge capability that might not exist in the commercial sector without specific (and expensive) contractual provisions.

Effects on Competition

Critics of partnerships have expressed a concern that partnering arrangements could eliminate or reduce a useful competitive element between the public and private sectors; an element that could spur both sectors to greater and more efficient efforts. In practice, this concern may not have a substantive impact.

DoD has adopted a general preference for commercial depot maintenance sources, when feasible, as a way of minimizing front-end investment costs.¹¹ This preference has the effect of reducing investment in dual public and private repair capabilities. Therefore, it is increasingly unlikely that more than one source of depot maintenance capability exists for newer weapon systems. Partnerships are a way to allow a single capability to be utilized by both public and private sectors.

The general case (single available source) for newer systems actually applies across depot maintenance in general. A recent study¹² determined that 85 percent of depot maintenance contract volume, and 44 percent of contract value, are single-source.¹³ The preponderance of competitive sourcing exists for commodities (e.g., tires and common avionics) as well as platforms and engines derived from commercial counterparts, particularly aircraft. Thus, for service-unique weapon systems and equipment, it is unlikely that competitive alternative

¹¹ *Mandatory Procedures for Major Defense Acquisition Programs (MDAPS) and Major Automated Information System (MAIS) Acquisition Programs*, DoD Regulation 5000.2-R, June 2001, paragraph C2.8.4.1.

¹² Logistics Management Institute, *Single-Source Contracting for Depot Maintenance*, Report number LG005T3, Calendar II, Joseph; Clifford, Regina S. Erickson, Steven R. et al., July 2001

¹³ A single-source contract is defined in the report as a contract that was issued on a sole-source basis, or a competitive solicitation for which only one source responded.

sources exist. There is a limited capability to develop alternative (organic) sources of repair, but this capability is primarily focused on reverse engineering repair capability when incumbent contract sources cease their support.

A major exception to this general case relates to the capabilities and workloads affected by the closure of two Air Force depots in the 1995 decisions of the BRAC. In both instances, the remaining Air Force depots teamed with industry to win competitive awards for large workload bundles. These teaming arrangements were probably unique to the 1995 BRAC round.

At least one partnership has generated internal competition between two collocated capabilities. The LANTIRN system is supported by a partnership between Lockheed Martin Missiles and Fire Control, Inc., and the Warner Robins Air Logistics Center. Lockheed Martin leases space in the Warner Robins avionics center for its portion of the partnership, and the two capabilities are complementary—Lockheed Martin primarily supports entire pods and line-replaceable units, and Warner Robins primarily supports shop-replaceable units. Some of the specific capabilities are similar enough to allow alternative sources of repair. The two teams have conducted simplified internal competitions to allocate workloads and make the most efficient use of the available capabilities. When alternative capabilities are available, it is possible for partnerships to incorporate elements of competition into their operation.

Some partnerships actually entail public-private competitions for major source selection decisions. The Stryker final assembly contract at Anniston Army Depot, which was mentioned earlier, was awarded after an internal competition within General Dynamics Land Systems that pitted the partnership against alternative sites for final assembly. Because the partnership won the internal competition, it acted as a subcontract within the competitive proposal for the manufacture of the Stryker—pitting General Dynamics Land Systems and its partners against United Defense Limited partnership and its partners for the prime contract award. This ability to employ such partnerships in support of public-private competition is an important adjunct to the overall partnering concept.

From a variety of perspectives, partnerships do not inherently reduce competition; and, in notable cases, they actually enhance competition in what would otherwise be single-source situations.

METRICS

As advertised, partnerships have a set of benefits that accrue for DoD, as well as a set of benefits that accrue for the private sector. After all, if a partnership is not beneficial to both partners, then the arrangement will not exist.

It is only natural to measure the actual benefits of partnerships against a set of standard metrics. The metrics should reflect the areas in which benefits ought to accrue in both the public and private sectors. However, it is easier to measure

benefits strictly from the government's perspective. Commercial entities typically do not divulge the benefits calculations derived from their proprietary business-case analysis, which they use to justify the arrangement.

At the time of publication, a joint service working group was addressing partnership metrics. Therefore, the treatment of government metrics is relatively brief.

From DoD's perspective, metrics fall into three basic categories:

- ◆ Measuring the level of *activity* associated with partnerships
- ◆ Measuring the *benefits* that actually accrue
- ◆ Measuring the extent to which partnering *objectives* are met.

Table 4 is a synopsis of metrics that might address each of these three areas of interest.

Table 4. A Government Perspective

Activity metrics	Benefits metrics	Objective metrics
Partnerships <ul style="list-style-type: none"> no. of partnerships ongoing no. of partnerships added since no. of partnerships being pursued Participants <ul style="list-style-type: none"> no. of partners currently no. of partners added since Value <ul style="list-style-type: none"> average annual revenue per partnership expected annual revenue for partnerships added since 	Private-sector investment: <ul style="list-style-type: none"> amount invested in new depot capability/infrastructure amount invested in additional material availability Skilled workforce <ul style="list-style-type: none"> no. of government jobs retained or created no. of private-sector jobs created in depot locales Operating efficiency/utilization <ul style="list-style-type: none"> percentage improvement in facility utilization percentage improvement in productive capacity utilization net revenue contribution to overhead 	Responsive product support <ul style="list-style-type: none"> examples of reduced customer wait time, repair cycle time, or increased reliability, due to partnerships Sustaining core capability <ul style="list-style-type: none"> examples of core capabilities that are being sustained substantially via partnerships Reducing DoD's costs <ul style="list-style-type: none"> examples of cost avoidance, cost sharing, or reduced prices to DoD customers due to partnerships Improved business processes <ul style="list-style-type: none"> examples of improved business processes or updated technology introduced via partnerships

BOS FEATURES IN PARTNERSHIPS

As previously discussed, many, if not all, partnerships have found it convenient to use the organic depot's operating licenses for base operating support functions, including hazardous waste disposal. The Environmental Protection Agency (EPA) and its state counterparts will typically only issue a single disposal license to a given site. This is a built-in rationale for a BOS partnership to accompany the actual production arrangement.

Other BOS functions incorporated in partnership agreements include fire and rescue services, medical clinic support, security, food service, and material handling as well as basic utilities. BOS functions are an important adjunct to the primary purpose of a partnership, and are sometimes reflected in a separate agreement for provision of such services.

CASE STUDIES

Each partnership has unique features that reflect its specific workloads, associated industrial capabilities, and the personalities of the agreement participants. Each attached appendix is a case study of a specific partnership that highlights particular features. These partnerships conveniently illustrate the breadth and depth of partnering arrangements and the potential for such agreements in the future. Key features of the case studies are as follows:

- ◆ The *Auxiliary Power Unit* partnership at Naval Aviation Depot Cherry Point (Appendix A) is dramatically improving its equipment readiness through innovative parts support, and illustrates the role of an inventory control point as a broker.
- ◆ The *Stryker Vehicle* final assembly partnership at Anniston Army Depot (Appendix B) features closely coordinated work forces to meet production schedules and illustrates the potential for organic depots to participate (in the role of a subcontractor) in head-to-head competition for new manufacturing workloads.
- ◆ The *JSTARS Total Systems Support Responsibility* (TSSR) partnership at Warner Robins Air Logistics Center (Appendix C) illustrates the evolution of partnership arrangements within the Air Force, including the role of the JSTARS Joint Program Office as the broker for day-to-day operations.
- ◆ The *LANTIRN* partnership, again at Warner Robins (Appendix D), is a prime example of side-by-side repair capabilities operated cooperatively by the partners.
- ◆ The *AGT1500 Recuperator* production facility at Anniston (Appendix E) is an example of a significant manufacturing capability located at a primary customer's site.

THE FUTURE

Partnership arrangements continue to evolve as the parties learn to take advantage of available legal authorities and contractual relationships are refined. At least two depots have already generated more partnerships because the existing partners developed additional partnering proposals. In this atmosphere, the scope of future

partnerships will likely continue to expand into new areas that are as innovative as the imagination of the parties involved.

Several characteristics of partnerships are evolving as well. What follows is a short list of highly probable characteristics that new partnerships are likely to reflect. Of course, these characteristics are subject to continual revision and addition as more ideas come to the fore:

- ◆ Partnerships will employ new legal authority (10 U.S.C. 2474) that applies to depot activities in their new designations as CITEs. Among other things, the legislation appears to authorize the involvement of depot capabilities in purely commercial manufacturing ventures, and most recently (Fiscal year 2002 Defense Authorization Act, P.L. 107-107 332), the CITEs have been given authority to treat commercial workloads accomplished on the CITE in a favorable way for reporting under 10 U.S.C. 2466, the so-called 50-50 rule. Taken together, these provisions promise to spur new levels of innovation to take advantage of the incentives the law provides.
- ◆ Partnerships will increasingly involve “green-field” applications in which the partnership forms before either partner expends capital to develop repair capabilities. Such agreements avoid sunk costs and embedded constituencies that hinder innovative development of the most cost-effective arrangements. Partnerships appear to allow the OEM and the organic depot to employ a single production and support infrastructure for the life cycle of the product.
- ◆ Partnerships will begin to attract supporting industries to the same site—along the lines of an industrial park. Even though the organic depot will not orchestrate the development of the park, the depot will provide the property and facilities for its commercial development, and will benefit from the synergism of the collocated capabilities in a wide variety of related support processes.
- ◆ Partners will improve workforce transitions. Commercial entities will use their production lines to train government employees in depot repair processes. Ultimately, commercial employees may become government employees (and vice-versa) as the workload shifts from production to support and back again with new modifications.

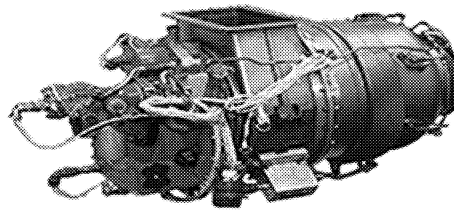
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- ◆ Ultimately, partnerships may employ fully integrated government and commercial workforces and production facilities to ease transitions and dramatically improve flexibility. Current concerns about violations of “personal services” restrictions¹⁴ will give way to new approaches to managing the workforce that are fully compliant with legal and policy requirements but also are fully integrated from a process perspective.

¹⁴ FAR 37.104, Personal Services Contracts. (a) A personal services contract is characterized by the employer-employee relationship it creates between the Government and the contractor’s personnel. The Government is normally required to obtain its employees by direct hire under competitive appointment or other procedures required by the civil service laws. Obtaining personal services by contract, rather than by direct hire, circumvents those laws unless Congress has specifically authorized acquisition of the services by contract. (b) Agencies shall not award personal services contracts unless specifically authorized by statute (e.g., 5 U.S.C. 3109) to do so.

APPENDIX A. AUXILIARY POWER UNITS

The partners:	NADEP Cherry Point for NAVICP Philadelphia Honeywell International, Inc.	
Project:	APU/DVD for	
	<u>Weapon system</u>	<u>APU type</u>
	F/A-18	GTCP36-200
	P-3	GTC95-2/3/10
	S-3	GTCP36-201
	C-2	GTCP36-201C
Partnership type:	Direct sales	
Authority:	MOA and a commercial service agreement between Honeywell and NADEP Cherry Point under 10 U.S.C. 2563	
Value:	Originally estimated \$200 million over 10 years (funding to NADEP Cherry Point only); current Cherry Point funding level is approximately \$6 million per year.	
Start Date:	June 2000	End Date: June 2010

Notes: NADEP = Naval aviation depot; NAVICP = Naval Inventory Control Point; APU = auxiliary power unit; DVD = direct vendor delivery.



Honeywell initiated discussions with NAVICP Philadelphia in conjunction with original negotiations for a direct vendor delivery contract to support the Navy's APUs. The agreement is now a performance-based logistics (PBL) partnership. This partnership was the first of its kind for Honeywell, and it serves as the company's "flagship." It was also the first PBL partnership for the Navy.

The NAVICP, Philadelphia, is the contracting activity and serves as the broker. Cherry Point provides depot maintenance production and field team support for the product range (i.e., the four specific APU types listed above) as part of a sub-contract to Honeywell. Honeywell provides DVD services. The partnership qualifies as (and is funded by) a PBL arrangement within NAVICP.

Both partners are ISO certified and provide quality assurance services to the partnership. Table A-1 summarizes the specific functions of each partner.

Table A-1. Functions Provided by the Partners

Honeywell	NADEP Cherry Point
Overall program responsibility	
Engineering support for R&O processes	Process integration projects
Product improvement design engineering	Logistics support
Manufacturing of OEM spare parts	Engineering investigations
Quality assurance	Quality assurance
Repair, rework, and test	Repair, rework, and test
Configuration management	Engineering support to fleet
FMS support	
Technical publications development	Technical publications projects
Response to national emergency surge	Response to national emergency surge
Continuous improvement	Continuous improvement

Note: R&O = repair and overhaul.

Workload requirements flow from Honeywell directly to Cherry Point, bypassing normal Naval Air Systems Command (NAVAIR) workload procedures. Additional workload is projected to transfer to the depot from planned consolidation of intermediate repair activities. Honeywell may bring to Cherry Point further repair work for similar systems in order to sustain specified workload levels. Cherry Point does not warrant its work to Honeywell. The NADEP Commander or the commander of Naval Air Systems Command resolves any disputes, depending upon the dollar amount in dispute. Alternative dispute-resolution procedures may be employed, however.

The partners share production and process engineering responsibilities; NADEP retains fleet support team and Honeywell retains field support engineering. The partners share data for reliability, quality, maintenance, and new repair processes. NADEP and Honeywell are jointly responsible for updating field maintenance technical information as necessary.

Honeywell provides workload allocation, parts support, asset management, and configuration management. Honeywell subcontracts with CAT Logistics, which provides packing, preservation, and distribution functions using express transportation. CAT Logistics established a facility in Havelock, SC, (near the NADEP) to support the operation. Frequently used parts are in pre-expended bins in the Cherry Point production facility. CAT also stores a (rotating) pool of reparable spare APU sub-components to reduce turnaround time for engine processing.

Since July 2001, Honeywell has provided all materials for APU repair (Cherry Point provides hazardous materials). Honeywell also provides engineering support to the NADEP Material Review Board (MRB). NAVICP pays Honeywell, which, in turn, pays Cherry Point for its work by check, which is deposited in the

Navy's working capital fund. Honeywell pays Cherry Point advance incremental funding to finance inductions.

Improved material support has substantially reduced the total number of Navy APU assemblies awaiting parts (from 118 in July 2000 to 16 in mid-October 2001). Fleet backorders for APUs have decreased from 125 items to just 6 over the same period. APUs induced in the fourth quarter of FY 2000 and first quarter of FY 2001 were completed with no additional backorders.

Honeywell is injecting new parts into the production process to improve overall reliability to guaranteed levels and to reduce the frequency of shop visits. Increasing APU availability effects total ownership and maintenance costs (i.e., fewer cannibalization actions, improved readiness rates, better product performance for lower maintenance requirements). This improvement has also apparently benefited Honeywell, which had a substantial number of backorders before the start of the partnership for its in-house production in Phoenix.

A commercial service agreement requires joint agreement for release of public information, secure data storage and transmission systems, and protection of technical information.

APPENDIX B. STRYKER VEHICLE

The partners:	Anniston Army Depot (ANAD) General Dynamics Land Systems (GDLS)
Project:	Stryker Final Assembly
Partnership type:	Direct sales
Authority:	10 USC 2208(j)
Value:	Approximately \$15 billion over 7 years (funding to ANAD only)
Start Date: FY 2001	End Date: FY 2007



This partnership began with overtures from a GDLS production manager who was formerly located at the GDLS tank plant in Lima, Ohio. Based upon an internal competition within GDLS, the Anniston Army Depot was selected as a final assembly site for the Stryker, and then as a subcontractor for the prime contract award with the Army. GDLS had already established a series of successful partnerships with ANAD, including the following:

- ◆ Fox vehicle upgrade (services, facility use)
- ◆ M1 gunners (primary site manufacture)
- ◆ M1/M1A2 upgrade
- ◆ Abrams Integrated Management (AIM XXI).

The General Motors/General Dynamics (GM/GD) Defense Group, LLC, won the competitive award to produce the Stryker for the Army. In turn, the GM/GD Defense Group subcontracted the award to General Motors Defense and General Dynamics Land Systems—ANAD is a second-tier subcontractor to General Dynamics.

ANAD (like other Army depots) has an on-site business office that serves as the initial broker for partnerships. For repair workloads, the broker function partially transfers to the funding and workload management activities in the Tank-Automotive and Armaments Command (TACOM) in Michigan once a partnership is activated. For manufacturing and leasing activities that do not have direct

TACOM involvement, the business office remains engaged in the broker process. Among other things, the business office has been instrumental in addressing workforce concerns about the potential effects of partnerships on Anniston government-employment levels.

ANAD personnel work side-by-side with GD personnel to perform Stryker final assembly. The assembly operation incorporates components manufactured by other branches of GDLS, General Motors–Canada, and other subcontractors. Total production calls for the assembly of 2,131 vehicles over the 7 years of the partnership. Vehicle assembly is split between General Motors–Canada (25 percent) and GDLS at ANAD (75 percent). Approximately 26 percent of the \$4 billion value of the contract will be expended at ANAD. In turn, half of that amount—or \$500 million—will be expended via subcontractors, including ANAD.

GDLS utilizes three separate facilities at ANAD to support this program and purchases BOS services (e.g., utilities, hazardous waste disposal, fire department, health services) from the depot. For full production levels, GDLS will add approximately 140 additional employees to their Anniston workforce, in addition to the 70 currently on site. ANAD will provide a side-by-side workforce of approximately 20 personnel to perform portions of the assembly operation and warranty support. An additional 10 ANAD personnel will support the program in final paint operations at ANAD facilities.

The contractor provided approximately \$2 million in initial capital investment, in addition to \$2 million in program funds for facilities and tooling. GDLS brings to the partnership production engineering, initial production and logistics support, warehousing and distribution services, and production operations skills. GDLS also provides limited rebuild services for foreign customers.

The ANAD partnership is the second lowest cost producer for GDLS. The lower costs reflect a non-unionized workforce, plant capacity tailored to the workload, lower capital costs (to the extent existing ANAD capabilities could be utilized), and avoidance of other overhead allocations from under-utilized plant capacity at Lima, Ohio. The organic depot at ANAD also benefits from reduced overhead allocations through improved plant utilization.

The organic depot at ANAD has been involved from the beginning in product support planning for the Stryker. It benefits from the capital investment injected into the organic plant by GDLS and will avoid additional capital cost to establish product support capabilities. The core capability is the production capability.

The partnership addressed a number of issues to develop a workable arrangement. For example, when the partnership was initiated, Defense Working Capital Fund (DWCF) accounting procedures were inadequate to support GDLS accounting

requirements. Facility use proved to be difficult to change due to organizational inertia and an organic reticence to identify excess capacity or capabilities. GDLS had a corporate problem with advance payment requirements for DWCF and needed to negotiate incremental funding procedures for the depot as a part of the contract. Suitable work-arounds were developed in each case.

APPENDIX C. E-8C JOINT SURVEILLANCE TARGET ATTACK RADAR SYSTEM TOTAL SYSTEMS SUPPORT RESPONSIBILITY

The partners:	Warner Robins Air Logistics Center (WR-ALC) Northrop Grumman Corporation
Project:	Joint Surveillance Target Attack Radar System (JSTARS) Total Systems Support Responsibility (TSSR)
Partnership type:	Government-furnished supplies and services
Authorities:	<ul style="list-style-type: none">• FAR 45.3• Long-range MOA for overarching goals and objectives (JSTARS Joint Program Office, Northrop Grumman, and WR-ALC depot)• Partnering agreement for general terms and conditions for depot maintenance and common item support (Northrop Grumman and WR-ALC depot)• Implementation agreements for specific workloads (Northrop Grumman and WR-ALC depot)
Value:	Estimated \$58.3 million over 6 years (funding to WR-ALC only)
Start Date: December 2000	End Date: FY 2007
Note: JSTARS TSSR agreement extends for a maximum of 22 years.	



The Joint Surveillance Target Attack Radar System is an airborne platform equipped with a long-range, air-to-ground surveillance system designed to locate, classify, and track ground targets in all weather conditions. JSTARS consists of an airborne platform (an E-8C aircraft) with a multi-mode radar system and U.S. Army mobile ground station modules. The E-8C, a modified Boeing 707, carries a phased-array radar antenna in a 26-foot canoe-shaped radome under the forward portion of the fuselage.

TSSR is the Air Force term for total sustainment responsibility. The JSTARS TSSR contract award (sole source to Northrop Grumman) occurred in September 2000. The original draft TSSR agreement would have transferred organic capabilities already in place to Northrop Grumman. In this case, WR-ALC intervened to seek a partnership arrangement.

The WR-ALC Director of Plans served as the broker for original agreement. Subsequently, the JSTARS Joint Program Office serves as the broker and contracting

authority for day-to-day operations. The depot cites the following advantages to having the program office as the customer for both partners:

- ◆ It streamlines government interfaces, and sources of payment.
- ◆ It avoids corporate hang-ups with advanced payments to DWCF.
- ◆ WR-ALC also contracts with Northrop Grumman to arrange for the actual support to be provided.

The depot performs (core) repair of prime mission equipment and software maintenance as well as other workloads (i.e., core-plus: ground support systems maintenance, other backshops, including chemical analysis and precision measurement equipment calibration). Under the partnership agreement, WR-ALC provides goods and services directly to Northrop Grumman. The JSTARS Sustainment Program Management Office, which is collocated at WR-ALC, serves as the customer for both WR-ALC depot operations and Northrop Grumman. The program office pays WR-ALC for depot maintenance production.

WR-ALC supports a total of 165 line items for JSTARS. However, only 55 of those line items actually generated repair requirements in the first 10 months of the partnership. This is fairly typical for initial repair operations with relatively small fleet sizes.

The contractor determines the depot's work requirements and provides sustaining engineering and other support functions to the depot to facilitate the depot's work accomplishment. Because the JSTARS weapon system and its related Northrop Grumman sustainment management are based at Warner Robins Air Force Base, all primary support elements (e.g., program management, contract, and depot) are located at the same site.

Benefits of these collocated functions include a single site for sustainment and mission support, reduced transit times and inventory requirements, and improved system availability. WR-ALC can sustain its core competencies with advanced workloads. The contractor avoids capital investment costs by using existing space in the WR-ALC Avionics Center. TSSR sustainment costs are "better-than-budget neutral;" and projected 6-year savings are \$23.7 million.

The sole-source contract award precluded a direct sales agreement under 10 U.S.C. 2563. The depot couldn't use 10 U.S.C. 2474 until after the Air Force completed its CITE designations. The partnership is currently considering a commercial land lease adjacent to the base for construction of a programmed depot maintenance hangar for the airframe, with a taxiway connection to the base taxiway system. The depot's software support facility still requires additional capital investment to accommodate block updates.

Northrop Grumman had to front-load depreciation charges to avoid organic production losses during initial production ramp-up (DWCF policy requires 10-year straight-line depreciation expenses regardless of workload; with low-volume initial workload, the depreciation expenses dominate the financial equation).

The contractor is seeking authority to continue to provide low-volume parts support to WR-ALC after production ends as an element of its parts obsolescence program for the system. The partnership believes support of the Defense Logistics Agency will probably never be appropriate for this system.

Air Force policy prohibits storage of contractor-owned hazardous materials on DoD property. Thus, the depot provides hazardous materials to the partnership.

APPENDIX D. AN/AAQ-13/14 LOW ALTITUDE NAVIGATION AND TARGETING INFRARED FOR NIGHT

The partners: Warner Robins Air Logistics Center (WR-ALC)
Lockheed Martin Missiles and Fire Control Company

Project: Low Altitude Navigation and Targeting Infrared for Night (LANTIRN)—Phase I and II

Partnership type: Phase I—Line-replaceable unit (LRU) repair contract and facility lease; Phase II—Direct sales

Authority: FAR 45.3 (facility lease) and 10 U.S.C. 2563

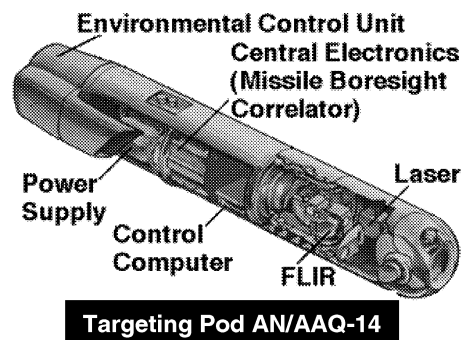
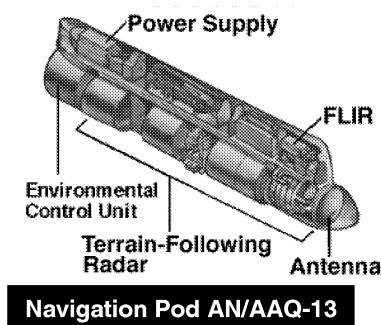
Value:	<u>Phase I</u>	<u>Phase II</u>	<u>Total</u>
FY 2001	\$123,000	\$150,000	\$273,000
FY 2002	\$123,000	\$788,810	\$911,810
FY 2003	\$123,000	TBD	TBD

Start Date: December 1997

End Date: December 2003

Note: The contract structures include a basic 1-year contract and five 1-year option periods for Phase I, and a basic 1-year contract with two 1-year option periods for Phase II. The Air Force has announced a replacement pod is now in acquisition, also provided by Lockheed Martin; it is possible the support arrangement for the new pod will also include a partnership at WR-ALC.

The Phase I contract award to Lockheed Martin was for LRU repair quantities above those supported organically by WR-ALC for Navy and foreign military sales customers. Phase II contract timing was driven by the approval cycle.



The WR-ALC Director of Plans served as the broker for the basic Phase I and Phase II agreements. The LANTIRN sustainment program manager (SPM) serves as the broker and customer for day-to-day operations.

In Phase I, the SPM awarded LRU component repair workload to Lockheed Martin. At the same time, WR-ALC issued the company a facility lease for space within its avionics center. Lockheed Martin repairs line-replaceable units and complete pods or modules for the Air Force, Navy, and foreign military sales customers. The WR-ALC capability is primarily at the shop-replaceable unit (SRU) level. Lockheed Martin and WR-ALC actively trade workloads based on abbreviated best-value analysis procedures. The working relationship between the two shops is friendly and cooperative.

In Phase II, WR-ALC and Lockheed Martin negotiated a direct sales agreement, whereby WR-ALC can repair 155 SRU line items as a subcontractor for Lockheed Martin. Reparables are received from Lockheed Martin, and Lockheed Martin pays the depot for work performed. The reparables primarily originate from a prime contract between Lockheed Martin and the SPM. Lockheed Martin subcontractors previously repaired these SRU line items at overseas and domestic locations, with longer lead times and higher costs. This agreement supports both DoD and Foreign Military Sales (FMS) customers.

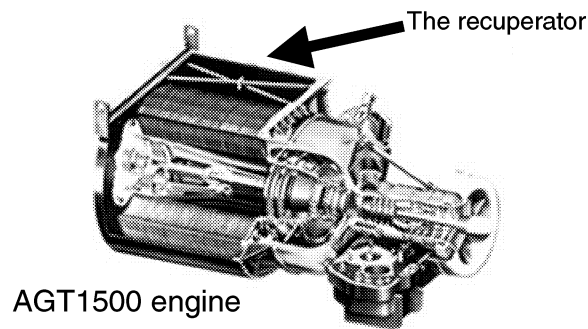
Concurrently, the NAVICP Philadelphia awarded an 8-year, \$56 million performance-based logistics (PBL) contract to Lockheed Martin in support of the LANTIRN targeting pods installed on F-14 aircraft. The PBL contract guarantees 90 percent availability (a 12 percent improvement from the level before contract award) and critical obsolete parts management while achieving a \$20 million cost avoidance. Lockheed Martin will provide technical representatives to manage depot-level reparables afloat. This contract is also supported by the Lockheed Martin capability at WR-ALC.

Lockheed Martin provided a capital investment to establish its repair capability in the avionics center (which was primarily focused on the LRU and pod level) and packing, crating, handling, and transportation (PCH&T) services for pods and LRUs. Lockheed Martin also invested in indirect process and system engineering for the facility from its offices in Orlando, Florida.

WR-ALC improved its facility utilization as a result of the partnership. The SPM realized improved turnaround times from the shorter repair cycle inherent in the two capabilities' proximity; the WR-ALC also reduced repair costs and other production synergies from the collocated technical competencies. WR-ALC continues to seek configuration management authority to obtain performance enhancements and address obsolescence (e.g., preferred spares, spiral updates), which could be available through the partnership, just as they are available through the Navy PBL.

APPENDIX E. AGT1500 RECUPERATOR PRODUCTION FACILITY

The partners:	Anniston Army Depot (ANAD) Honeywell International, Inc.
Project:	Recuperator—Facility use and base operations/base logistics
Partnership Type:	Lease and sale of services
Authority:	10 U.S.C §4543
Value:	\$599,000, plus \$58,000 to date
Start Date: FY 1998	End Date: Ongoing



This is an example of a “pure” facility lease arrangement in which production has been collocated with its primary user. The production operation benefits from base operations support provided by the depot.

The recuperator in the AGT1500 engine on M1 tanks is a sophisticated heat exchanger used to warm inlet air for the engine. The device consists of a doughnut-shaped stack of thin-wall inconel-steel sheets that are cut into a doughnut shape, pressed to form embedded air passages, laser-cut to provide a precision surface treatment, and welded together into pairs. The primary customer for recuperator production is the AGT1500 engine overhaul line, which is located in an adjacent building.

Recuperator production was formerly located at the Army’s Stratford Engine Plant in Stratford, CT, which was closed by BRAC ‘95. Honeywell relocated the capability to ANAD.

The ANAD business office acts as the on-site mediator and broker for this partnership. ANAD provides 30,000-square feet of former warehouse space to Honeywell for the Recuperator Core manufacturing facility. Honeywell invested in the building (and used BRAC facilitation funding) to create the current production facility.

Honeywell receives rolls of steel sheeting. The output is a boxed set of the recuperator elements that are delivered directly to the engine overhaul line. Approximately 90 percent of the facility's production volume is for the ANAD overhaul line. Army customers are PM Abrams for PROSE¹ engine kitting and logistics support, and TACOM for spares. The remainder is primarily for FMS direct sales customers (e.g., Germany, Egypt).

Honeywell employs a workforce of 43 direct production workers and 7 indirect, for a total of 50 personnel, including the facility manager. The workload is mature and stable.

Honeywell employs its BOS contract to receive support services from the depot, including transportation of the product to the overhaul line, the medical clinic, and fire department. It hires a commercial carrier when it ships to its FMS customers.

Honeywell applies its 6-sigma approach to quality, and operates what is arguably a "world-class" production operation. The facility is certified to AS9100 (ISO 900–1994) and employs a formal process of failure-modes and effects analysis to analyze and correct deficiencies.

The facility has a full-time DCMA plant representative. Because it is down the street from the overhaul line, plant management can react immediately to address production problems on site. The facility is exposed to Inspector General visits and participates in base chemical- and biological-defense exercises. ANAD provides hazardous waste disposal, which reduces oversight by the Alabama OSHA.²

On-site production eliminates the need for a parts or supply manager, DLA stocking and issuing, and related surcharges. ANAD avoids potential production disruptions from parts shortages and can operate with reduced overhead. The minimal supply chain also reduces the need for raw material inventory and on-hand finished-goods inventory. Production is throttled to meet customer demand on a near "just-in-time" basis. The depot benefits from proximity to production and immediate resolution of production problems.

Recuperator manufacture is a core competency for Honeywell's product line; locating it at ANAD initially meant "someone else can turn out the lights." This concern was reduced through a variety of trust-building measures. The ANAD depot workforce was initially skeptical about the contractor's presence and the potential to outsource organic work, but this concern was alleviated over time.

From Honeywell's perspective, production efficiencies are there for the taking if both sides can work together. To do so, both sides must have a common goal and mission in mind for the partnership to work. To date, the partnership has apparently been successful. A key to that success involves the way the partners address problems when they arise. In other words, they must address problems coopera-

¹ Partnership for Reduced Operations and Support Costs Engine.

² Operation and support hazard analysis.

tively. Both sides agree, there are occasional hiccoughs, but these never spell the end of the partnership.

APPENDIX F. ABBREVIATIONS

BOS	base operating support
BRAC	base realignment and closure
CITE	Center of Industrial and Technical Excellence
EPA	Environmental Protection Agency
FMS	Foreign Military Sales
FY	fiscal year
G&A	general and administrative
GAO	General Accounting Office
ICP	inventory control point
JSTARS	Joint Surveillance Target Attack Radar System
LANTIRN	Low Altitude Navigation and Targeting Infrared for Night
LAV-III	Light Armored Vehicle III
MOA	memorandum of agreement
MOU	memorandum of understanding
NADEP	Naval Aviation Depot
NAVAIR	Naval Air Systems Command
OEM	original equipment manufacturer
OSD	Office of the Secretary of Defense
PM	weapon system manager
TSSR	Total Systems Support Responsibility

